

LAWRENCE LIVERMORE REPORT

A weekly review of scientific and technological achievements from Lawrence Livermore National Laboratory, April 11-15, 2011

LLNL director to retire



George Miller

Come October, Lab Director George Miller will have more time to spend with his family and enjoy everything that comes with retirement.

Miller announced this week that after a four-decade career with the Lab, he will retire as director and step down as president of Lawrence Livermore National Security (LLNS), which runs the Laboratory for the Department of Energy.

He thanked employees for their continued support throughout his career, saying he was "amazed, inspired, and humbled" by their dedication, creativity, capability, passion and humor.

"Our country is facing major challenges and I am firmly convinced that the Laboratory's capabilities and our employees' talents are ideally positioned to help solve some of the most significant problems," Miller added.

Miller has served as Laboratory director since 2006, under the management of the University of California, and in 2007 he also was named LLNS president when the National Nuclear Security Administration awarded the contract to manage LLNL to LLNS. As the first president and director under the LLNS contract, Miller guided the Laboratory through transition to a new management system, cutting down on operating costs while seeking ways to improve on the Lab's missions of science in the national interest.

To read more, go to the [Web](#).

The big, the bold, the fast



The Dawn supercomputer, which will be the basis for Sequoia.

While China may hold the record for the world's fastest supercomputer to date with the 2.5-petaflop (a petaflop is a thousand trillion floating point operations per second) Tianhe-1A, it will have some serious competition come next year.

Next year's Top 500 list of the world's most powerful supercomputers will list systems capable of performing calculations as much as eight times faster than the fastest computers available today.

Will China lose its fastest computer crown in 2012? Number one on that list is likely to be the 20-petaflop (floating operations per second) Lawrence Livermore supercomputer aptly named Sequoia, which is set to be operational in 2012. IBM is on target to build the machine that will be housed at the Lab's Terascale Simulation Facility.

Sequoia will work on simulations of nuclear explosions to reduce the need for real-world tests.

To read more, go to the [Web](#).

Wow, that's hot



NASA's Mercury Messenger spacecraft

A team of Laboratory physicists are using a specially designed instrument that operates at -333 degrees Fahrenheit to take measurements of the surface of Mercury, which reaches about 800 degrees.

They'll soon have the answer next week when the team's gamma-ray spectrometer is scheduled to begin sending back information after nearly seven years aboard NASA's Mercury Messenger spacecraft.

The craft, which launched from Cape Canaveral, Fla., between a hurricane and a tropical storm in August 2004, is expected to reach planetary orbit Thursday.

The Lawrence Livermore crew's spectrometer is one of seven instruments aboard the craft sending back data that scientists will use to learn more about Mercury's magnetic field and planetary formation. The information likely will lead to insight about our own planet, the researchers said.

The spectrometer resembles an elaborate gold coffee can with a hunk of silver metal -- the element germanium -- inside.

To read more, go to the [Web](#).

Ben Santer elected AGU fellow



Ben Santer

Ben Santer is a man with a lot of accolades under his belt: a recipient of the MacArthur "genius" grant; an E.O. Lawrence Award; a Department of Energy Office of Biological and Environmental Research (BER) Distinguished Scientist Fellowship; contributor to all four assessment reports of the Intergovernmental Panel on Climate Change (IPCC); an organization that shared the 2007 Nobel Peace Prize with former Vice President Al Gore; and now an American Geophysical Union fellowship.

But he'd give all the awards up if it meant he could present his research on human-induced climate change to a patient audience -- an audience that would listen to all the facts before making judgments about reality of a "discernible human influence" on climate.

Human-induced climate change is likely to be one of the major environmental problems of the 21st century, and effective policies to mitigate human effects on climate will require sound scientific information.

Providing that information is what climate scientist Santer continues doing as the Laboratory's winner of the AGU fellowship.

Santer, an expert in the climate change research community, has worked in the Laboratory's Program for Climate Model Diagnosis and Intercomparison (PCMDI) for nearly 20 years and is a frequent contributor to congressional hearings on the science of climate change. He credits his success to the exceptional scientists he collaborated with at LLNL. "The best reward (award) is working together with great colleagues."

To read more, go to the [Web](#).

LLNL applies and advances science and technology to help ensure national security and global stability. Through multi-disciplinary research and development, with particular expertise in high-energy-density physics, laser science, high-performance

computing and science/engineering at the nanometer/subpicosecond scale, LLNL innovations improve security, meet energy and environmental needs and strengthen U.S. economic competitiveness. The Laboratory also partners with other research institutions, universities and industry to bring the full weight of the nation's science and technology community to bear on solving problems of national importance.

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